



**STUBBINS AND
RAMSBOTTOM FLOOD
RISK MANAGEMENT
SCHEME,
ROSSENDALE,
LANCASHIRE**

Heritage Assessment



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CONTENTS

SUMMARY	2
ACKNOWLEDGEMENTS.....	3
1. INTRODUCTION.....	4
1.1 Circumstances of the Project.....	4
1.2 Location, Topography and Geology.....	4
2. METHODOLOGY	5
2.1 Introduction	5
2.2 Desk-Based Assessment.....	5
2.3 Walkover Survey.....	6
2.4 Report.....	6
3. BACKGROUND.....	7
3.1 Historical and Archaeological Background	7
3.2 Prehistoric Periods	7
3.3 Historic Periods	10
3.4 Map Regression Analysis.....	16
4. WALKOVER SURVEY	19
4.1 Introduction	19
4.2 Results	19
5. GAZETTEER OF SITES.....	30
6. ASSESSMENT OF THE SIGNIFICANCE OF THE REMAINS.....	37
6.1 Introduction	37
6.2 Quantification of Importance	38
6.3 Statement of Importance	38
7. IMPACT ASSESSMENT	40
7.1 Impact.....	40
7.2 Significance of Impact	41
8. RECOMMENDATIONS.....	46
8.1 Introduction	46
8.2 Proposed Mitigation	46
9. BIBLIOGRAPHY	48
9.1 Primary and Cartographic Sources.....	48
9.2 Secondary Sources	48
ILLUSTRATIONS	51
Figures.....	51
Plates	51

SUMMARY

Following proposals for a flood management scheme adjacent to the River Irwell at Stubbins, Rossendale, Lancashire, the Planning Archaeologist at Lancashire County Council advised that a heritage assessment be undertaken, due to the known presence of heritage assets of industrial character within the area. Following the submission of a project design by Oxford Archaeology North (OA North), the Environment Agency and Atkins subsequently requested that OA North undertake the heritage assessment. The heritage assessment is intended to assess the archaeological value of the site and the implications that the proposed scheme would have on the heritage assets.

The desk-based assessment comprised a search of both published and unpublished records and a walkover survey was also conducted of the land subject to the development proposals. Twenty-five sites, or heritage assets, have been identified within the study area, defined as 200m around the development area. Nine of the heritage assets are located in the near vicinity of the proposed flood wall and, therefore, might be affected by the development (Sites **16-23** and **26**). There are no listed buildings or scheduled monuments within the study area that might be affected in terms of visual impacts upon their settings, although the northern east/west stretch of the proposed flood wall lies immediately adjacent to, and partially within, the Chatterton/Strongsty Conservation Area (Site **26**). All of the sites that might be affected by the proposed development date to the industrial period and relate to the industrial development of Stubbins and comprise the locations of several mills and associated housing and communication routes.

The impacts upon Sites **16**, **17**, **18**, **21**, **22**, and **23** will all comprise direct physical impacts upon above ground and sub-surface remains of archaeological interest as a result of the excavation of foundations for the proposed flood management walls. The Chatterton/Strongsty Conservation Area (Site **26**) lies along the north-eastern and northern extents of the proposed development area and the north-western end of the proposed flood management scheme will cross into the south-western portion of the conservation area. This will result in a visual impact upon this portion of the conservation area, although this will not intrude on any of the 'important views' defined by Rossendale Borough Council Character Appraisal and Management Proposals Plan (2011).

The proposed mitigation options vary and depends upon the requirements of each heritage asset, but includes archaeological watching brief, topographic and photographic survey, and planted screening to soften the impact of part of the flood walling. If the removal of stonework (Site **23**), associated with the sluice gate, is necessary to facilitate piling, the structure should be exposed and subject to full building recording in advance of any disturbance.

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OA North would like to thank the Environment Agency and, in particular, Simon Fox of Atkins. OA North would also like to thank the staff at Lancashire Historic Environment Record (LHER), Lancashire County Record Office in Preston (LCRO), Bury Archives and Local Studies Service, and Bolton Museum and Archive Service. We would also like to thank Doug Moir, Lancashire County Council, for his assistance at the outset of the project.

The desk-based assessment and walkover survey were undertaken and reported upon by Alastair Vannan. Jamie Quartermaine managed the project and edited the report, which was illustrated by Mark Tidmarsh.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 Following proposals for a flood management scheme adjacent to the River Irwell at Stubbins, Rossendale, Lancashire, the Planning Archaeologist at Lancashire County Council advised that a heritage assessment should be undertaken, due to the documented presence of heritage assets of industrial character within the area. Following the submission of a project design by Oxford Archaeology North (OA North), the Environment Agency and Atkins requested that OA North undertake the heritage assessment. The heritage assessment is intended to assess the archaeological value of the site and the implications that the proposed scheme would have on the heritage assets.

1.1.2 The desk-based assessment comprised a search of both published and unpublished records held by Lancashire County Record Office (LCRO), at Preston, in addition to records held by Bury Museum and Archives, Bolton Museum and Archive Service, and the archives and library held at OA North. A walkover survey was conducted of the land that would be impacted by the development proposals, so as to relate the landscape and surroundings to the results of the desk-based assessment. The sections of the National Planning Policy Framework (NPPF, DCLG 2012) relating to heritage assets were considered during the assessment. The desk-based research and walkover survey were undertaken in June 2013 and this report briefly sets out the results.

1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

1.2.1 The proposed development site lies within an area of relatively flat land along the inner, western, side of a curve of the River Irwell at the eastern side of Stubbins, Rossendale, Lancashire (NGR SD 79370 17997 (central point); Fig 1). It is situated at a height of approximately 35m (aOD) and is less than 1km to the north of Ramsbottom. This portion of the Irwell Valley is flanked by the rising land leading to Scout Moor, to the east, and Holcombe Moor to the west.

1.2.2 As the site occupies a former floodplain of the River Irwell, the local drift deposits comprise alluvial sand, clay, silt, and gravel (British Geological Society 2013). These overlie mudstone and siltstone of the Marsden formation, which comprise coarse-grained and pebbly feldspathic sandstone interbedded with grey siltstone and mudstone, and subordinate black shales, thin coals, and seatearths (*ibid*).

2. METHODOLOGY

2.1 INTRODUCTION

2.1.1 This desk-based assessment was carried out in accordance with the relevant Institute for Archaeologists and English Heritage guidelines (IfA 2011, *Standard and Guidance for Archaeological Desk-based Assessments*; IfA 2010 *Code of Conduct*; English Heritage 2006, *Management of Research Projects in the Historic Environment* (MoRPHE)) and generally-accepted best practice. The assessment also considered the guidance in *The Setting of Heritage Assets* (English Heritage 2011a) and *Seeing the History in the View* (English Heritage 2011b).

2.2 DESK-BASED ASSESSMENT

2.2.1 The principal sources of information consulted were historical and modern maps of the study area and information held by the Lancashire Historic Environment Record (LHER), as well as published and unpublished secondary sources. A study area with a radius of 200m, extending from the proposed development area, was examined in detail in order to provide an understanding of the potential impact of the proposed works on the identified heritage assets. All heritage assets identified within the study area have been included in the Gazetteer of Sites (*Section 5*) and are plotted onto the corresponding Figure 2. The results were analysed using a set of criteria used to assess the national importance of an ancient monument (DCMS 2010). Sources consulted include:

2.2.2 **Lancashire Historic Environment Record (LHER):** the LHER held in Preston was consulted to establish the sites of archaeological interest already known within the study area. The LHER is a database of all known sites of archaeological interest in Lancashire.

2.2.3 **Lancashire County Record Office, Preston (LRO):** the record office holds the primary collection of published and manuscript maps, as well as unpublished primary sources and secondary published sources relating to the historic county of Lancashire.

2.2.4 **Bury Archives and Local Studies Service:** the archives and local studies library hold both published and manuscript maps, as well as unpublished primary sources and secondary published sources relating to the Borough of Bury. Although Bury lies within Greater Manchester, it falls within the historic county of Lancashire and some of the records relevant to the study area are held at the archive.

2.2.5 **Bolton Museum and Archive Service:** the museum and archive service holds primary and secondary sources relevant to Bolton and to the wider region.

2.2.6 **Oxford Archaeology North:** OA North has an extensive archive of secondary sources, as well as numerous unpublished client reports on work carried out both as OA North and under its former guise of Lancaster University Archaeological Unit (LUAU). These were consulted where relevant.

2.3 WALKOVER SURVEY

2.3.1 A walkover survey was conducted of the proposed development area on 6th June 2013. The main aim of this survey was to identify the location and extent of any previously unrecorded sites of archaeological interest, as well as to gain an understanding of the state of preservation and extent of any known sites that might be affected by the proposed works. The results of the survey were compiled using photographic and written records.

2.4 REPORT

2.4.1 A copy of the report will be submitted to the Lancashire HER.

3. BACKGROUND

3.1 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

3.1.1 ***Introduction:*** in addition to a detailed investigation of the closely defined study area, it is also necessary to present a general archaeological and historical background of the wider locale. This will allow the wider archaeological context of the site to be considered.

Period	Date Range
Palaeolithic	<i>c</i> 500,000 – 10,000 BC
Mesolithic	10,000 – 4000 BC
Neolithic	4000 – 2400 BC
Bronze Age	2400 – 700 BC
Iron Age	700 BC – AD 43
Romano-British	AD 43 – AD 410
Early Medieval	AD 410 – AD 1066
Late Medieval	AD 1066 – AD 1540
Post-medieval	AD 1540 – <i>c</i> 1750
Industrial Period	<i>c</i> AD1750 – 1914
Modern	Post-1914

Table 1: Summary of British archaeological periods and date ranges

3.2 PREHISTORIC PERIODS

3.2.1 ***Mesolithic Period (c8000 - 4000 BC):*** the general patterns of Mesolithic activity and settlement location indicate that the Irwell Valley would have been a favourable location for occupation and transport routes, and the upland areas of the surrounding moors to the north would have enabled access and provided a hunting resource. There is a relatively large number of sites known from this period from the upland Pennine region as evidenced by concentrations of flint tools, such as arrowheads, and waste flakes, particularly in the Saddleworth/Marsden area, and along the Millstone Edge ridge and around Pule Hill; this has been described as the most densely occupied area of Mesolithic Britain (Spikins 2002, vii; Stonehouse 1988, 5). The high density of the finds distribution may be real or may be exaggerated by the greater dispersion of artefacts in the deeper soil of the valleys and lowlands of the Central Pennines (Barnes 1982, 25) and because local societies, searching for lithic artefacts, have been particularly active in this region. In some instances, the flint scatters have been found associated with hearths, fire pits and stake-holes (Spikins 2002, 39). Artefactual studies in Lancashire and beyond enable the division of such sites into Broad and Narrow-bladed Industries (Redhead 2004, 12).

3.2.2 Pollen evidence from surviving peat deposits at the site of Deep Clough indicates that during this period most of Holcombe Moor, to the west of the study area, would have been wooded (Tallis and McGuire 1972) and the sites in the region are considered to represent summer hunting forays, into these upland wooded areas (Barnes 1982, 36). The scale of hunter-gatherer movements can be identified through identification of stone sources for tools. In the Early Mesolithic the people of the central Pennines were exploiting raw materials from Yorkshire and Lincolnshire, which possibly implies seasonal movements. By the Late Mesolithic the population were exploiting more localised sources of small river-borne flint nodules and black chert, which may imply more localised groups of hunter-gatherers (Spikins 2002, 47). There have been finds of Mesolithic flint by the Littleborough Archaeological Society at Knowl Hill and Great Ding on Scout Moor, to the east of the study area (LUAU 1995). Further sites have been recorded from the lowlands of the Irwell Valley, the most important of which is located at Radcliffe E'es (HER 77); where evidence exposed in the 1950-60s by gravel quarrying revealed flints, rows of posts with interweaving branches and cobbled areas. These features were also interpreted as being a seasonal summer camp on the banks of the river Irwell (Nevell and Redhead 1999, 5).

3.2.3 **Neolithic Period (c4000 - 2500 BC):** during the Neolithic period, the rise in sea levels and the resultant extension of the estuaries into lowland areas, together with the growth of peat mosses, appears to have resulted in reduced settlement in the lowlands of Lancashire, a process that started in the Neolithic and continued into the Bronze Age. There is evidence, however, of monument construction and inhabitation in the upper Irwell valley at this period, as there are the remains of a putative hengiform monument located at Radcliffe Cemetery (HER 347), which was potentially the focus of seasonal ritual and communal activity, but was not a permanent settlement site (Nevell and Redhead 1999, 6). The Neolithic landscape of Holcombe Moor, to the west, remained predominantly woodland but forest clearance for agriculture began with slight inroads into marginal woodlands fringing the Rossendale uplands and western Pennines (Tallis and McGuire 1972). The pollen evidence shows several phases of woodland decline and regeneration during the Neolithic and, although some of these may be natural events (such as forest fires), it is likely that there were some Neolithic upland clearance episodes, which then led to peat formation by the time of the Bronze Age. This suggestion of human activity is supported by the finding of Neolithic artefact scatters and occasional finds from the wider area (*ibid*); the few ceramic finds recovered show that the pottery was mostly locally produced. Neolithic artefacts have been found in the vicinity of Holcombe Moor and also at Prestwich, Kersall Moor and Radcliffe E'es (Redhead 2004, 12).

3.2.4 **Bronze Age (c2500BC-700BC):** Bronze Age evidence in the Pennine region is dominated by metalwork find spots, together with 'flat' cemeteries, funerary earthworks and stone-built monuments. The pollen evidence shows the impact of clearances indicated by the decline in recorded tree pollen, as people started to settle and farm the land. Settlement evidence is, however, marked by its paucity, and is a situation replicated elsewhere in the country; however, by the Late Bronze Age, some enclosed (defensive) farmsteads begin to appear

(Barnes 1982, 71). An Early Bronze Age axe hammer was found at Holcombe (near Cinder Hill) in 1904 (SD 7820 1660) (Barnes 1982, 102).

3.2.5 Bronze Age funerary monuments are a direct indication of the presence of a former population in the area at this date. A Bronze Age barrow or cairn is situated at Whitelow Hill (SD 8050 1626), 2km to the south-east of the study area near Ramsbottom. The Whitelow cairn was excavated by the Bury Archaeological Group between 1961 and 1965 producing a rich assemblage of grave goods, including five ceramic urns and eight cremations; the primary burial was a female with associated grave goods (Tyson 1995). A second cairn, located east of Bank Lane, Shuttleworth, 1km to the east-south-east of the study area (SD 8050 1720), was edged by a series of kerb stones. It was recorded during a rescue excavation in advance of quarrying and was found to comprise an adult inhumation within a stone cist; the remains of an infant lay below the cist (*ibid*). There is a potentially significant burial complex comprising a stone circle and two ring-cairns recorded from Cheetham Close, approximately 8km to the west-south-west of the study area, which are Bronze Age in character (Redhead 2004, 12; LUAU 2000).

3.2.6 **Iron Age Period (700 BC-AD 43):** there is evidence of a climatic deterioration from the middle Bronze Age to the mid-Iron Age (1300 BC to c400BC) and this corresponds with a decrease in identifiable findspots and funerary sites within the region (Redhead 2004, 14). This general trend is seen elsewhere in the North West, where the uplands show evidence of having been abandoned during the Iron Age, and when the peat bogs expanded and marginal farm land became unworkable (Redhead 2004, 14). However, from the middle of the Iron Age the pollen data shows a renewed clearance of the uplands to the west of the study area, around Holcombe Moor, and seems to indicate a possible increase in arable activity during this period, and the expansion into wider areas of land, both lowland and upland (Hall *et al* 1995). The palaeoenvironmental evidence also suggests a mixed arable and pastoral economy, especially from Anglezarke Moor to the west (Barnes and Bain 1985).

3.2.7 Archaeological evidence of the Iron Age is typically scarce, and there are only a few small assemblages of coarse pottery, a general lack of metal artefacts, and a few visible earthwork monuments (*ibid*; Nevell 1999, 14; Nevell and Roberts 2005, 117). The main form of settlement evidence is that of ditched simple enclosed settlements; there are two excavated examples in the wider region at Great Woolden Hall and Castlesteads (Nevell and Redhead 1999, 7 and Redhead 2004, 14). There is a further hilltop earthwork at Rainscough (HER 346), but this was mostly destroyed in the 1930s (Nevell and Redhead 1999, 7). The closest defended settlement to the survey area is at Castlesteads, just north of Bury, and c5km to the south of the study area (SD 797130). This is a simple enclosed settlement, located on a promontory overlooking the River Irwell, and which produced four radiocarbon dates that have a calibrated date range of 550 BC to AD 247 (Fletcher 1992). Finds from the period are particularly rare, and there is one type comprising carved stone heads with 'Celtic' features. These are often found to have been relocated in garden and house walls as ornaments, and their distribution is skewed to the Pennine foothills and uplands (Redhead 2004, 14). Three potential examples, comprising two human heads and a horse's head are located 3km to the south-

west of the study area at Pillar Croft (HER 9040.1.0, HER 9040.1.1 and HER 9040.1.2 – SD 770 150; Nevell and Redhead 1999, 7).

3.3 HISTORIC PERIODS

3.3.1 **Roman Period (AD 43 - 410):** the Romans are likely to have arrived in the vicinity of the borough of Bury in the 70s AD, building roads out from the newly established fort at Manchester and others at Ribchester, Elslack, Ilkley, and Newton Kyme, which helped control the Pennines (Redhead 2004, 15). The Romans may have entered an area that was largely open and cultivated, with farmsteads lying along the local river valleys (Redhead and Nevell 1999, 8). The importance of the Upper Irwell valley at this time may be emphasised by the course of the Roman road from Manchester to Ribchester (*ibid*; GMHER 14), which runs through Tottington, and 5km to the west of the study area. However, the portion of the Irwell valley within which the study area lies is separated from the course of the road by the upland expanse of Holcombe Moor.

3.3.2 The pollen evidence from Deep Clough on Holcombe Moor, shows a prolonged clearance phase that extended from the Iron Age into the Roman period, presumably reflecting a continuation of the mixed arable and pastoral farming economy (Tallis and McGuire 1972). However, a pollen diagram from immediately below the Roman road at Ainsworth, about 4km to the south-west of the study area, shows that there was still dense forest in some of the valleys (Barnes 1982). The indications are that there was an increase of forest clearance, coupled with arable farming, and would indicate a number of scattered arable farms exploiting both the local valley land, as well as the unimproved moorland (Nevell 1999). Settlement evidence in the Bury region continued into the Early Roman period at Castlesteads and at Rainscough, which was also occupied into the second century AD (Nevell and Redhead 1999, 9). While there was probably a continuation of Iron Age culture (OA North 2004), the indigenous population would have been aware of a Roman military presence and possibly produced goods to trade. The Romanisation of the region, on present evidence, seems to be of limited extent and particularly short-lived for rural sites, with many showing little Roman material culture (Nevell and Redhead 1999, 9; Nevell and Roberts 2005, 117).

3.3.3 **Early Medieval Period (AD c410-1066):** remains dating to this period are rare, and most evidence is based on place names, topographical elements, such as curved churchyards, and surviving stonework, such as cross fragments and architectural detailing in buildings (Newman 1996), although palaeoecological studies often demonstrate human activity during this period that is not necessarily represented by cultural remains (Newman 2006, 91-3). The museum at Bury holds several stone fragments dating to this period, although their provenance is not always well established.

3.3.4 Following the Roman period, the pollen record from the wider area shows an increase in tree pollen, indicating forest regeneration and the partial abandonment of agricultural lands (Tallis and McGuire 1972). This may reflect a decline of population on the land, which, coupled with the loss of the market foci of the forts, may have resulted in a downturn in agricultural productivity.

3.3.5 A coin from the reign of Aethelred I, minted in 790-6, was found at Whitelow, 2km to the south-east of the study area, and a potash pit dated to AD 996-1162 (990 BP \pm 35: GrN - 20688) was excavated near to Whitelow cairn (Nevell and Redhead 1999, 9). Although there is no known evidence for early-medieval activity within the study area, the place-name of Stubbins may date to this period. Stubbins was first recorded as Stubbys Hall in 1559 and derives from the Old English phrase meaning a clearing (Mills 1976, 137). This could indicate that an Anglo-Saxon settlement was established in the area within a clearing, although the possibility of linguistic continuity within local dialects means that place-names can not provide unequivocal evidence of activity during specific periods (Newman 1996, 96).

3.3.6 **Medieval Period:** the study area lies largely within the higher part of Tottington township. Tottington formed a medieval manor, or fee, and formed part of the medieval parish of Bury (Farrer and Brownbill 1911, 144; Nevell and Redhead 1999, 12). Tottington was held by the Montbegon and Lacy families, and may also have included Shuttleworth during the medieval period, within which the south-eastern portion of the study area lies (Farrer and Brownbill 1911, 144). Tottington appears to have been regarded as a free chase, or manorial hunting ground (*op cit*, 145). By the fifteenth century, Tottington was held by the crown and was run by a bailiff (Nevell and Redhead 1999, 13). The Rawsthorne family were landowners in Tottington from at least as early as 1304 and land owners with a derivative of this name; 'Rostron' (Farrer and Brownbill 1911, 146) were recorded as holding property within the study area during the nineteenth century (DRM 1/97).

3.3.7 Although Tottington was recorded in medieval documents, the records are slight and included the mention of a fair in 1295 and a manor house in 1296 and 1305 (Nevell and Redhead 1999, 15). The Tottington estate covered a very large area and there appears to be little specific information relating to Stubbins and its immediate vicinity. Indeed, the earliest reference to Stubbins appears to slightly post-date the medieval period in 1559 (Mills 1976, 137). An early church was recorded to the east, at Edenfield, as early as 1541 (Farrer and Brownbill 1911, 149), but no mention appears to have been made of a settlement or buildings within the study area. This might suggest that Stubbins comprised an agricultural landscape of scattered farmsteads at this date, with the residence of one of the larger landowners being at Stubbys Hall. Indeed, the predominant form of settlement in south-eastern Lancashire during the medieval period comprised isolated manor halls and farmsteads and most of the manors in the medieval parish of Bury did not have a nucleated core, such as a village or a hamlet (Nevell and Redhead 1999, 15).

3.3.8 The economy of Tottington was dominated by agriculture and the production of cereals is attested by the presence of a manorial corn mill, Cawdaw Mill, as early as the thirteenth century (*op cit*, 17). To the north, Rossendale was a cattle rearing area and several possible medieval vaccaries, or cattle farms, have been identified in Tottington (*ibid*). Tanning and iron-working also took place in Tottington during the medieval period, and iron working may have been undertaken within the Holcombe area (*op cit*, 18).

3.3.9 The position of the proposed development area, on a floodplain adjacent to the River Irwell, might suggest that this land would not have been permanently

occupied until necessitated by pressures on land resulting from an increase in the local population density. It is possible, therefore, that the majority of the study area adjacent to the river would have been utilised for pasture or arable agriculture. However, although seemingly hazardous, the propensity for the historic siting of structures, including houses, within areas liable to flooding can not be dismissed, and has been demonstrated elsewhere in the country at sites dating to the medieval period, for example in the Hull valley (Evans 2000, 212). The local availability of elevated land above the floodplain might, however, make this less likely.

3.3.10 Portions of the boundaries between the townships of Tottington Higher End, Tottington Lower End, and Walmersley cum Shuttleworth lie within the study area and it is not clear at what date these boundaries, as recorded on nineteenth-century mapping, were established. Tottington comprised a single estate during the medieval period, although it is possible that the boundary between Tottington (Higher End) and Walmersley cum Shuttleworth townships, which lies within the proposed development area, was present during the medieval period. The tenurial history of Shuttleworth is complex and there appear to have been long-disputed lands within the area throughout the medieval period (Farrer and Brownbill 1911, 141-3). However, Shuttleworth may have been separated from Tottington, and joined with Walmersley, by the fifteenth century (*ibid*).

3.3.11 **Post-medieval and Industrial Periods:** Tottington, within the parish of Bury, lay within the county of Lancashire during the post-medieval and industrial periods (Farrer and Brownbill 1911, 143-50). Tottington continued to be held by the crown during the post-medieval period, and was run by a bailiff (Nevell and Redhead 1999, 19). The estate was divided into Higher and Lower Tottington during the seventeenth or eighteenth centuries and, therefore, the boundary between these townships is likely to be of post-medieval date (Farrer and Brownbill 1911, 143-50).

3.3.12 The absence of resident aristocracy within the wider parish of Bury meant that the pattern of large country houses within associated estates that occurs elsewhere in the North West was absent from this area (*ibid*). The hamlet and farmstead, therefore, remained the most important element of the settlement hierarchy of the middle and upper Irwell valley between 1500 and 1765 (*ibid*). There was, however, a general increase in population and in the concentration of dispersed farms and halls across the parish of Bury during this period (*op cit*, 20-21). Agriculture remained the predominant basis of the economy between the sixteenth and eighteenth centuries, with some areas practicing arable cultivation within enclosed common fields (*op cit*, 23). However, the predominance of pastoral farming in parts of the upper Irwell valley meant that there were few common fields in these areas, although common grazing lands are known to have existed on the moors above the River Irwell (*ibid*). In addition to agriculture, the textile industry provided relatively common employment for people as weavers in the parish of Bury during the seventeenth and eighteenth centuries, prior to the intensification and industrialisation of the occupation in the second half of the eighteenth century (Nevell and Redhead 1999, 25). This was likely to have mainly comprised self-employed weavers working from their homes (*ibid*). A seventeenth-century farmhouse (Site 09),

which has now been converted into two cottages, lies at the western side of the study area.

3.3.13 The proposal for a turnpike road from Bolton to Edenfield had been approved by 1797 (Simpson 2003, 155) and although a plan of the proposed route from 1797 (BMAS ZAL/1339) suggests that the road through the study area constituted a new route, Yates's map of 1786 (Fig 3) showed a road following this route through the study area and crossing the River Irwell at the same point as the current Stubbins Bridge (Site 20), just to the north of the confluence of the Irwell and Dearden Clough. This bridge was referred to on historic mapping variously as 'Stubbins Bridge', 'New Bridge' (OS 1849), New Hundred Bridge (BMAS ZAL/1339), and 'New-In-Tottington Bridge' (OS 1910). Records relating to the repair of 'New Bridge' in Tottington date to at least as early as 1663 (LCRO QSP/240/3), and the repair of the New Bridge in stone was recorded in 1701-2 (LCRO QSP/873/3). It is not clear, however, if these documents definitely relate to the same bridge. The current bridge appears to be of nineteenth-century date, although detailed inspection would be necessary to identify any evidence for structural phases.

3.3.14 The beginning of the industrial revolution in the Bury area, with the development of a factory and urban society from the preceding rural communities, has been assigned to 1773, with the establishment of a calico printing works to the north of Bury by the Peel family (Nevell and Redhead 1999, 28). The Peels established several mills and works in the Irwell valley and may have established the first water-powered mill in the area, by 1783 (*ibid*). The dominance of woollen manufacture during the eighteenth century was replaced by cotton production in the early nineteenth century and the River Irwell provided power for spinning mills, in addition to water to be used in the finishing trades (*op cit*, 29-30). The areas around the towns of Bury, Radcliffe, Tottington, and Ramsbottom grew significantly as centres of textile production and finishing during the nineteenth century (*op cit*, 31) and, in addition to these concentrated agglomerations of industrial production, mills spread along the Irwell valley into Stubbins.

3.3.15 The portion of the Irwell valley close to Stubbins was the location of an extremely early textile industrial development, with a water-powered woollen fulling mill being established to the east of the study area at Dearden Clough by 1765 (Simpson 2003, 54). Chatterton Mill (Site 02) was established between 1787 and 1790 on the eastern side of the River Irwell, to the north of the study area, and this utilised water power from the river (*op cit*, 60). The water was channelled from a portion of the river upstream of the mill and the discarded water then flowed southwards along the Chatterton mill race to a point at the River Irwell just north of Stubbins Bridge (*ibid*). Rather than emptying directly into the Irwell, the water was carried over the river through a covered timber aqueduct (Site 16) and then passed through a culvert (Site 17) underneath the turnpike road (Bolton Road North; A676), before linking with the head race for Ramsbottom Mills (Site 18) (*ibid*). This aqueduct does not appear to have been in place when the mill was first established in 1787-90, as it was not shown on a plan of 1797 (BMAS ZAL/1339), and may have been built as part of the reorganisation of the water management systems in 1818 (see Simpson 2003, 60). In 1826 Chatterton Mill (Site 02) installed 46 new powerlooms and in April of that year handloom weavers attacked and smashed the looms in protest

at the associated redundancy of weavers (*op cit*, 61). A plaque at the site, erected by the Edenfield Local History Society in 2003, records that soldiers of the 60th foot fired upon the weavers, killing four men and one woman and that a fifth man, who was an onlooker, was also shot dead. The timber aqueduct was not depicted on the OS mapping of 1849, suggesting that it was no longer in use by this date, and the tail race appeared to flow directly into the River Irwell. A flood embankment (Site 21) was shown on the western side of the river and it is possible that this was established at the same time that the aqueduct was removed, in order to mitigate potential flooding as a result of the increased volume of water within this portion of the river.

3.3.16 A calico printing works, known as Stubbins Printworks (Site 05), was established in 1785 to the west of the study area (*op cit*, 62). This was supplied with water from the stream in Ox Hey Clough, rather than utilising the River Irwell, and passed through several changes of ownership and development before closing in 1903 (*op cit*, 61-3). Rose Bank Printworks (Site 03) were built at the eastern edge of the study area in 1791 (*op cit*, 71). The mill initially functioned as a woollen mill and part of it began to be used as a printworks in 1831 (*ibid*). A bleachworks (Site 14) was built to the south-west of Rose Bank Printworks (Site 03) in 1801 and was initially known as New Bridge or Rose Bank Bleachworks (*op cit*, 75). The bleachworks and printworks became directly associated in 1834, when they were both leased by Jackson, Watson and Grieg (*ibid*).

3.3.17 To the south of the study area, in the northern part of Ramsbottom, James and John Ashton built Ramsbottom Mills, possibly as early as 1802, which operated as a spinning and weaving manufactory (Hume Elliot 1893, 144). The precise chronological development of the mill buildings and facilities is not clear, but a long goit formed a head race that supplied the mill with water power and had been established by the time of the production of the Tottington Higher End tithe map of 1838 (LCRO DRM 1/97). This goit ran from a part of the River Irwell lying within the southern part of the study area, and was immediately to the south of Stubbins Bridge (Site 20). It is likely that this goit had been established by at least as early as 1818, as Simpson (2003, 60) describes the tail race from Chatterton Mill linking to the head race as part of a water management system that is likely to have been established at this date. A portion of the goit was shown on OS mapping as late as 1963, but was no longer depicted on the mapping of 1967-8, and appears to have been infilled by this date. A weir (Site 10) was established between 1801 and 1832, to the south of Stubbins Bridge, in order to supply the goit with water, although it is not known whether this was built before or after the aqueduct supplying water from Chatterton tail race was removed. The weir has now been removed and, according to a local resident who was spoken to during the walkover survey and had lived on Dale Street for over 30 years, had been in a state of poor repair for a long time and was dismantled some years ago. A linear section of large-block masonry (Site 23) is visible within a garden adjacent to the river and this appears to correspond with the position of a sluice shown as early as 1893 (OS 1893). A block of three small buildings (Site 24) with associated exterior plots was built between 1893 and 1910 (OS 1893; OS 1910) and was also shown on the OS mapping of 1912. The function of these buildings is unclear, although it was presumably associated with either the gasworks (Site

22) or the Union Works (Site 15). These buildings were no longer depicted on the OS mapping of 1929.

3.3.18 The lease for Dearden Clough Mill, which was held by J and J Porritt, was due for renewal in 1851 (*op cit*, 97). The brothers decided that instead of renewing the lease for this site, which their business was outgrowing, that they would build, and become owners of, a new mill at Stubbins and Stubbins Vale Mill (Site 13) opened at the end of 1850 (*ibid*). In addition to the mill, during the nineteenth century the brothers built numerous local cottages and two shops, and Stubbins Vale House (Site 11) was built as James Porritts's home (*op cit*, 98).

3.3.19 The Union Works (Site 15), consisting of Union Mill and Cuba Mill, occupied the southern portion of the study area, immediately to the west of the proposed development area. Union Mill was established as part of a co-operative mill by the Ramsbottom Spinning and Manufacturing Company, which was incorporated in 1861 (*op cit*, 104). The mill was built in 1868 and workers' houses were also constructed on Bolton Road North and on Dale Street (*op cit*, 104-5). All of the terraced houses to the southern side of Bolton Road North (Site 19) had been built by 1893 (OS 1893). Union Mill went into liquidation in 1904 and was divided into two distinct portions, with the weaving shed being let to the Star Manufacturing Company, and the spinning section being sold to a new company named Cuba Mill Ltd (Simpson 2003, 105).

3.3.20 During the eighteenth and early-nineteenth centuries, the thriving industries of the Irwell valley and wider areas did not possess a direct canal or rail route to Manchester and a railway project was instigated in 1843 (*op cit*, 161-3). At this time, the journey between Edensfield and Manchester took an average of five hours and Thomas Aitken, the Chatterton cotton manufacturer, became a major investor and one of the directors of the new scheme (*ibid*). In 1846, the East Lancashire Railway Company opened the line between Bury and Rawtenstall (*ibid*; Site 01), which runs through the western side of the study area, although the portion between Accrington and Stubbins Station (Site 06) was not opened until 1948. A gasworks (Site 22) was established within the southern portion of the study area during the second half of the nineteenth century. The gasworks was not shown on the OS mapping of 1849, but was depicted on the mapping of 1893.

3.3.21 **Modern Period:** the former site of the Stubbins Printworks was established as a paper mill in 1911 and continued in this general function, under the auspices of a series of different owners, into the twenty-first century (Simpson 2003, 64-5). Rose Bank Printworks (Site 03) ceased to function in association with textile production in 1974 and, following the reuse of some of the buildings for other businesses, it was demolished in around the 1980s (*op cit*, 75). Stubbins Vale Mill (Site 13) continued in use as a factory site during the twentieth century and, although the oldest parts of the mill were demolished in the 1970s, some of the mill buildings continued to be used as business premises (*op cit*, 103). Union Mill, at Union Works (Site 15), operated as a separate entity from the adjacent Cuba Mill during the earlier twentieth century, until it was closed in 1924 and demolished in 1939 (*op cit*, 106). Business at Cuba Mill had severely declined by the mid 1930s and it had various uses during the mid twentieth-century until two fires in 1974 destroyed the main portion of the mill (*op cit*,

107). The site was subsequently redeveloped as an industrial estate (*ibid*). The gasworks (Site 22) was shown as late as the OS mapping of 1967-8, but had been demolished and redeveloped as part of Cuba Mill by 1977-83 (OS 1977-83).

3.3.22 The immediate vicinity of the northern part of the proposed development area remained relatively free of development into the early part of the twentieth century, with buildings fronting Bolton Road North being almost the only structures depicted in this area in 1910 (OS 1910). The number of houses in this area gradually increased, with part of Robert Street having been established by 1929 and most of the current houses having been established by 1963 (OS 1963).

3.4 MAP REGRESSION ANALYSIS

3.4.1 **Introduction:** the following section comprises a summary of the most relevant cartographic evidence available for the study area. Relevant details from other map sources have been incorporated within the historic background section (*above*). The map regression focuses on the most pertinent portion of the study area, which is the loop of the River Irwell defined by the railway to the west, as this where the proposed development is sited.

3.4.2 **Yates's map of 1786 (Fig 3):** Yates's map of 1785 depicted the whole county of Lancashire, but did not provide a high level of detail. The map showed a road following the approximate current route of Bolton Road North through the study area and crossing the River Irwell at the same point as the current Stubbins Bridge (Site 20). Although the map is not detailed, this crossing point was depicted just to the north of the confluence of the Irwell and Dearden Clough, which corresponds with the current crossing. Later maps of the county of Lancashire did not provide any additional detail, or a differing view of the area (Greenwood 1818; Hennet 1829).

3.4.3 **Plan of the proposed turnpike road from Bolton to Edenfield of 1797 (BMAS ZAL/1339; Plate 1):** this is one of the earliest maps or plans to have depicted the study area in any detail. It was produced in order to depict the proposed line of the turnpike road, but the plan showed other details in the adjacent landscape; the absence of some details might have been the result of omission by the surveyors, rather than evidence that such features were not present at this time. The plan showed the mill pond and head race at Chatterton Mill (Site 02), but the long tail race leading to the River Irwell, just to the north of Stubbins Bridge, was not shown. As the head race was shown in detail, the absence of the tail race suggests that it had not been established at this date and that the water out from the mill was channelled directly into the River Irwell, possibly along the linear boundary depicted running south from the mill. Stubbins Bridge (Site 20) was named as New Hundred Bridge and, with the exception of tracks running along the western bank of the river, no features or structures were depicted within the bend of the river that the proposed development area occupies. Although the key to the map suggests that the red colouring indicates a proposed deviation from existing roads, the route through the study area appears to be consistent with that shown on Yates's map of 1786. A single mill

named at the western side of the study area appears to have represented Stubbins Printworks (Site 05).



Plate 1: Extract from the plan of the proposed turnpike road from Bolton to Edenfield of 1797 (BMAS ZAL/1339)

3.4.4 Tottington Tithe Maps; Higher end (1838; LCRO DRM/97) and Lower End (1842; LCRO DRM/98) (Fig 4): the study area fell within the boundaries of both portions of the Tottington township, as well as part of the township of Walmersley cum Shuttleworth. The latter tithe map, however, was awaiting conservation at Preston Record Office and was in too fragile a state to be produced. The Tottington tithe maps were the first maps to present a detailed depiction of the study area. The tail race from Chatterton Mill (Site 02) was depicted, although there was no indication of the timber aqueduct (Site 16) that formerly carried the water over the River Irwell. This was the first map to have depicted the goit (Site 18) that formed the head race for Ramsbottom Mills, as well as the weir (Site 10) that fed the head race. A solid straight line at the eastern side of the northern end of the goit is likely to represent the retaining wall along the bank of the Irwell (Site 23) that was partly visible in a garden during the site visit, within which the sluice was set. A curving flood embankment (Site 21) was depicted to the north of Bolton Road North. A small

building in the position of the toll house (Site 13) and two apparent toll gate structures were shown at Bolton Road North.

3.4.5 ***OS first edition map of 1849 at 6" to 1 mile (Fig 5):*** the first edition map presented a similar depiction to the preceding tithe maps, but to a higher degree of detail. This was the first map to depict the East Lancashire Railway (Site 01) between Bury and Rawtenstall and Stubbins Station (Site 06) was named. The embankment (Site 21) in the northern part of the study area was shown and the toll house (Site 13), weir (Site 10), and Ramsbottom Mills goit (Site 18) were also shown.

3.4.6 ***OS first edition map of 1893 at 25" to 1 mile (Fig 6):*** this map was considerably more detailed than the preceding OS map and showed that the area in the immediate vicinity of the proposed development had changed considerably in the intervening years. This map showed that the gas works (Site 22) had been built to the east of Stubbins Station (Site 06) and the Union Works (Site 15) had been established to the south of Bolton Road North. The workers' terraced housing around Dale Street and Industrial Street (Site 19) were shown, in addition those lining Bolton Road North. The sluice (Site 23) was named adjacent to the weir (Site 10).

3.4.7 ***OS map of 1910 at 25" to 1 mile (Fig 7):*** this map presented a very similar depiction of the area to that of 1893, although Union Works (Site 15) was shown divided between Union Mill and Cuba Mill. A block of three buildings with exterior plots (Site 24) was shown to the south of the Union Mill site. The northern portion of the embankment (Site 21) was not shown on this map.

3.4.8 ***OS map of 1929 at 25" to 1 mile (Fig 8):*** the map from 1929 presented a very similar depiction of the immediate environs of the proposed development area as the map of 1910, although the housing had been extended to the north of Bolton Road North and the block of three buildings (Site 24) in the southern part of the area was not shown.

4. WALKOVER SURVEY

4.1 INTRODUCTION

4.1.1 The walkover survey was undertaken on 6th June 2013 and aimed to determine the survival of any above-ground remains of heritage assets identified during the desk-based assessment and also to identify any previously unrecorded sites within the proposed development area. The whole of the proposed development area was accessible and was examined systematically. The weather was clear and dry.

4.2 RESULTS

4.2.1 ***Area north of Bolton Road North:*** the area to the north of the main road consisted of a twentieth century housing estate, with associated gardens or allotments between the rear of the houses and the River Irwell. The northernmost extent of the proposed development area comprised the boundary between the residential estate and the large open space of Pin Meadow (Plate 2). This area was seen to include a change in level between the residential area and the meadow (Plate 3), the western part of which may represent the earlier flood embankment (Site 21). The route of the proposed flood management scheme then followed the course of a footpath along the eastern side of the houses, which was flanked to one side by the rear fences of gardens and to the other side by the riverside allotments and garden spaces (Plates 4-5). The allotment and garden spaces adjacent to the river were set back approximately 1.5-2m from the river bank (Plate 6). The proposed route then crossed the public space of the memorial gardens to the north of Stubbins Bridge (Plate 7). The remains of the base of the Chatterton Mill tail race aqueduct (Site 16) were visible within the low water of the River Irwell, to the north of Stubbins Bridge (Plate 8). The low water levels also exposed stakes along the western bank of the river that had been used to attempt to retain the river bank, and which had been augmented with deposits of stone and rubble (Site 25). The area across which the tail race of Chatterton Mill (Site 02) ran, comprised an open meadow with tall grasses (Plate 9) and no sign of the tail race was visible. The view from the eastern side of the river showed that the western bank is lined with mature trees.



Plate 2: Pin Meadow viewed from the south-west with the tree marking the approximate position of the flood management wall



Plate 3: The boundary between Pin Meadow and the residential area, marking the approximate route of the proposed flood management wall, looking west



Plate 4: The passage between back gardens and allotment/garden areas to the west of the River Irwell at the northern end of the proposed scheme, looking south-west



Plate 5: The path between back gardens and allotment/garden areas to the west of the River Irwell and just north of Stubbins Bridge, looking south-west



Plate 6: The narrow space between the rear boundaries of the allotment areas and the river at the northern end of the proposed scheme



Plate 7: An oblique view of the northern elevation of Stubbins Bridge (Site 20) with the modern footbridge adjacent

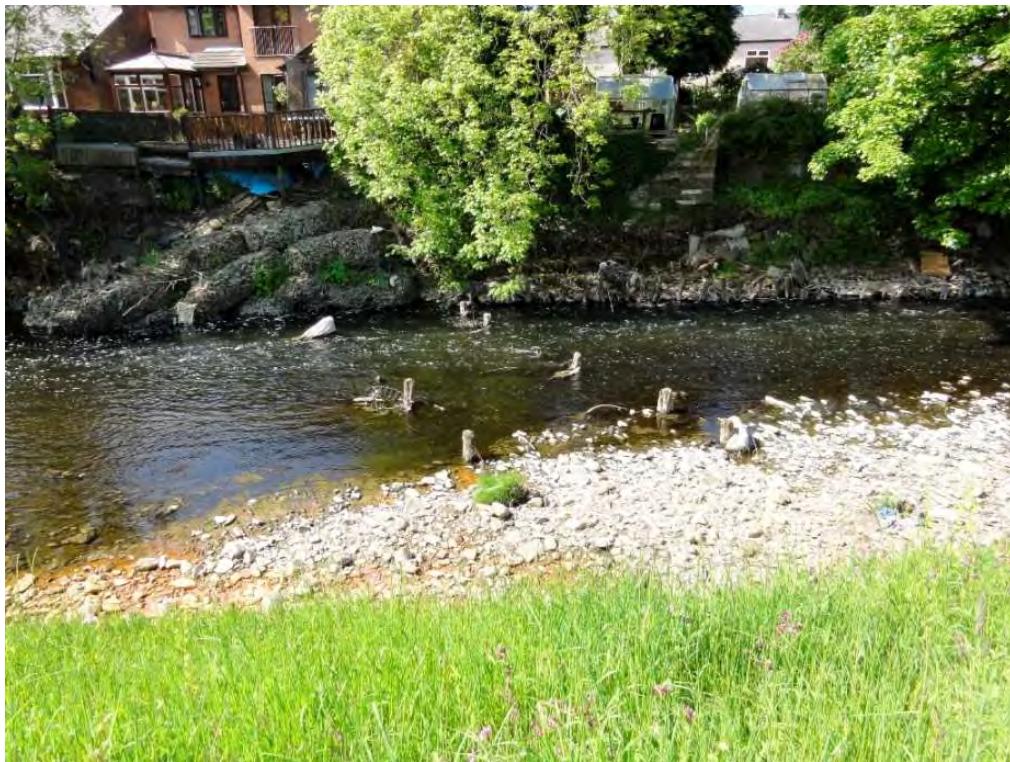


Plate 8: A series of upright timber posts (Site 17) to the north of Stubbins Bridge representing the supports for a timber aqueduct that formed part of the Chatterton Mill tail race (Site 02). Stakes and rubble (Site 25) used to prevent bank erosion are visible to the right side of the image



Plate 9: The meadow to the east of the River Irwell through which the Chatterton Mill tail race (Site 02) formerly ran

4.2.2 **Area south of Bolton Road North:** the area to the south of Bolton Road North consisted of industrial areas and nineteenth-century residential properties fringing the western bank of the River Irwell. Although the northern side of Stubbins Bridge (Site 20) is obscured by a modern footbridge (Plate 7), the southern side remains visually unobstructed from the river (Plate 10). The western bank of the river is overgrown with vegetation and trees (Plate 11) and is separated from the residential area by fences and walls (Plates 12 and 13). The nineteenth-century workers' cottages had not been subject to any conspicuous external modifications (Plates 12 and 13) and the whole of the historic layout of the terraces remained *in situ*.

4.2.3 The former weir (Site 10), associated with the Ramsbottom Mills goit (Site 18), had been entirely removed and the low water levels of the river allowed a thorough visual inspection from each side of the river but no material associated with the weir was visible (Plates 14 and 15). A local resident said that the weir had been in a state of disrepair for a long time and had finally been removed some years earlier. The garden belonging to this resident lay adjacent to the river and she indicated a line of large blocks or slabs of masonry (Plate 16) that she said used to form the visible edge of the river bank. This masonry appears to correspond with the general location of a sluice shown on historic mapping.

4.2.4 To the south of the residential area, the proposed route of the flood wall runs along the edge of an industrial estate and the river bank in this area is separated from the estate by steel fencing with overgrown vegetation and trees growing close to the fence (Plate 17). The former course of the Ramsbottom Mills head race goit is now occupied by a wide avenue providing access to businesses on the industrial estate (Plate 18).



Plate 10: A view of the southern elevation of Stubbins Bridge



Plate 11: Looking southwards towards the proposed route of the flood wall from Stubbins Bridge



Plate 12: The front of the workers' cottages (Site 19) at the eastern end of Dale Street, looking east



Plate 13: The rear of the workers' cottages (Site 19) at Bolton Road North and Dale Street, looking east



Plate 14: The location of the former weir (Site 10), looking north-west



Plate 15: The site of the former weir (Site 10), looking south-east

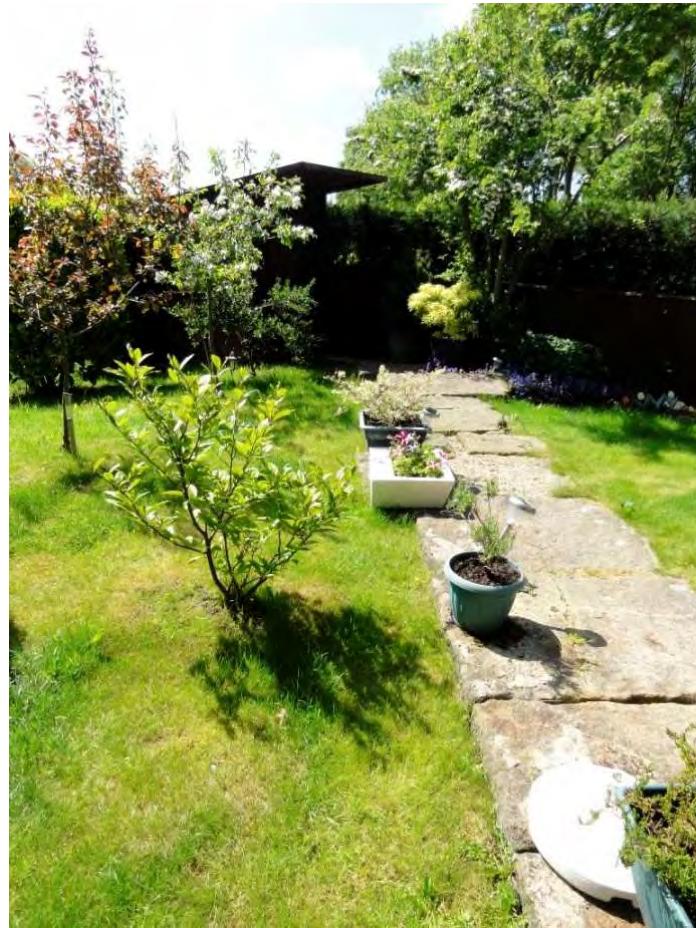


Plate 16: Large block masonry (Site 23) running to the west of the former weir (Site 10) and possibly associated with the sluice

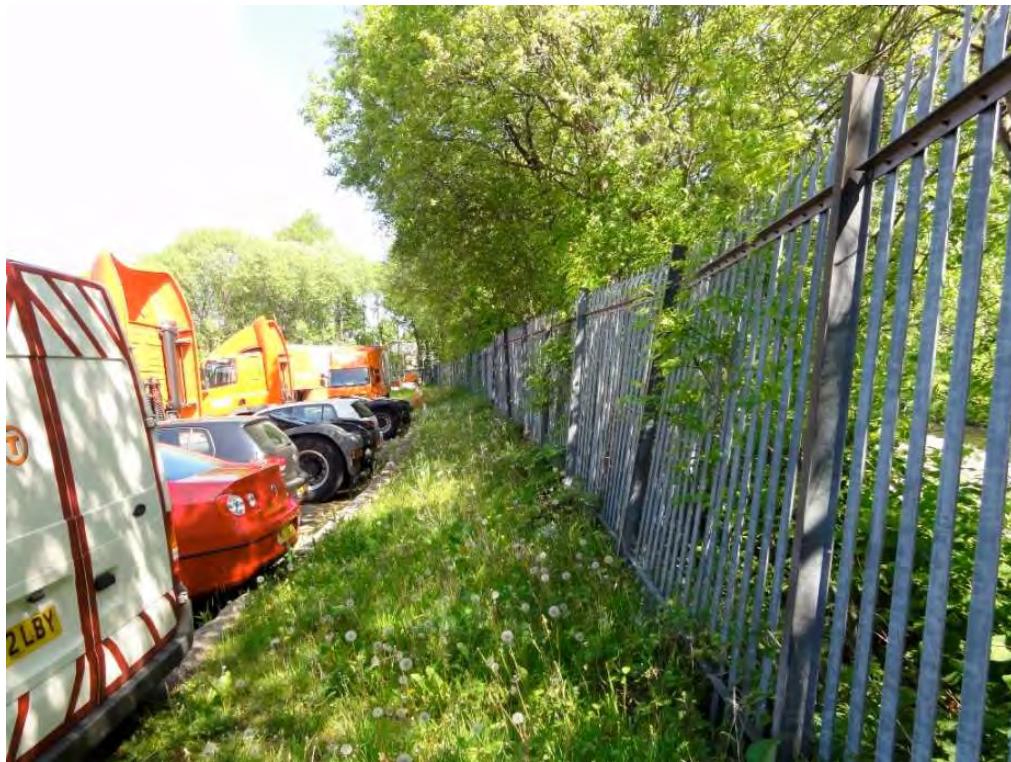


Plate 17: The southern end of the route of the proposed flood wall at the rear of the TNT depot



Plate 18: The wide avenue within the industrial estate that lies on the line of the former Ramsbottom Mills head race goit (Site 18)

5. GAZETTEER OF SITES

Site number	01
Site name	Accrington to Ramsbottom Railway
NGR	SD 7747 2313
Site type	Railway
Period	Industrial (nineteenth century – 1846-8)
HER No	2081
Statutory Design.	-
Sources	LHER; Simpson 2003, 161-3
Description	In 1846, the East Lancashire Railway Company opened the line between Bury and Rawtenstall, which runs through the western side of the study area, although the portion between Accrington and Stubbins Station (Site 06) was not opened until 1948. The Accrington to Ramsbottom railway closed in 1966.
Assessment	The site lies beyond the proposed development area and will not be affected.
Site number	02
Site name	Chatterton Mill, Stubbins
NGR	SD 79237 18573
Site type	Tail race of Fulling mill/cotton mill
Period	Industrial (eighteenth century – 1787-90)
HER No	8743
Statutory Design.	-
Sources	LHER, Simpson 2003; BMAS ZAL/1339
Description	Chatterton Mill was established between 1787 and 1790 on the eastern side of the River Irwell and utilised water power from the river. The water was channelled from a weir upstream of the mill, brought across the inside of a bend, and then crossed the Irwell before feeding a millpond above the mill. The discarded water then flowed southwards along the Chatterton mill race to a point at the River Irwell just north of Stubbins Bridge (Site 02). Rather than emptying directly into the Irwell, the water was carried over the river through a covered timber aqueduct (Site 16) and then passed through a culvert (Site 17) underneath the turnpike road (Bolton Road North; A676), before linking with the head race for Ramsbottom Mills (Site 18). In 1826 Chatterton Mill installed 46 new powerlooms and in April of that year handloom weavers attacked and smashed the looms in protest at the associated redundancy of weavers (<i>op cit</i> , 61). A plaque at the site erected by the Edenfield Local History Society in 2003 records that soldiers of the 60 th foot fired upon the weavers, killing four men and one woman and that a fifth man, who was an onlooker, was also shot dead. The mill had been demolished by 1910, with its site and the mill pond being used as a recreation ground by that date.
Assessment	The mill lies beyond the proposed development area and will not be affected.
Site number	03
Site name	Rose Bank Print Works
NGR	SD 7955 1820
Site type	Woollen mill and calico printing works
Period	Industrial (eighteenth century -1791)
HER No	8745
Statutory Design.	-
Sources	LHER; Simpson 2003
Description	Rose Bank Printworks were built in 1791. The mill initially functioned as a woollen mill and part of the mill began to be used as a printworks in 1831. A bleachworks (Site 14) was built to the south-west of Rose Bank Printworks in 1801 and was initially known as New Bridge or Rose Bank Bleachworks. The bleachworks and printworks became directly associated in 1834, when they were both leased by Jackson, Watson and Grieg.

Assessment	The mill lies beyond the proposed development and will not be affected.
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Site number	04
Site name	Rosebank House, Stubbins
NGR	SD 7940 1821
Site type	House
Period	Industrial (pre-1849)
HER No	8747
Statutory Design.	-
Sources	LHER
Description	A house, an associated garden and well were shown on the OS map of 1849 in a slightly different location to the current Rosebank House.
Assessment	The house lies beyond the proposed development area and will not be affected.

Site number	05
Site name	Stubbins Printworks
NGR	SD 7910 1792
Site type	Printworks
Period	Industrial (eighteenth century - 1785)
HER No	8762
Statutory Design.	-
Sources	LHER; Simpson 2003
Description	A calico printing works, known as Stubbins Printworks, was established in 1785 by Johnson and Lee. This was supplied with water from the stream in Ox Hey Clough, rather than utilising the River Irwell, and passed through several changes of ownership and development before closing in 1903.
Assessment	The printworks lies beyond the proposed development area and will not be affected.

Site number	06
Site name	Stubbins Station, Stubbins
NGR	SD 7918 1796
Site type	Railway station
Period	Industrial (1846)
HER No	8764
Statutory Design.	-
Sources	LHER
Description	The railway station was built in c1846 and has been demolished.
Assessment	The railway station lies beyond the proposed development area and will not be affected.

Site number	07
Site name	No. 56 Stubbins Street, Stubbins
NGR	SD 79017 18081
Site type	House
Period	Industrial (1801-1832)
HER No	11058
Statutory Design.	Grade II listed building (no 1072784)
Sources	LHER
Description	This is an early-nineteenth century house that has been subsequently altered. It abuts numbers 52 and 54 Stubbins Street and is listed for group value only.
Assessment	The house lies beyond the proposed development area and will not be affected.

Site number	08
Site name	Nos. 60 and 62 Stubbins Street, Stubbins
NGR	SD 78996 18081
Site type	House
Period	Industrial (1801-1832)
HER No	11059
Statutory Design.	Grade II listed building (no 1361991)
Sources	LHER
Description	This is a pair of early-nineteenth century cottages, one of which has a single storey extension. The cottages have two storeys and are symmetrical. They are listed for group value only.
Assessment	The cottages lie beyond the proposed development area and will not be affected.

Site number	09
Site name	Nos. 52 and 54 Stubbins Street, Stubbins
NGR	SD 79026 18085
Site type	Farmhouse
Period	Post medieval/Industrial (1601-1699)
HER No	11326
Statutory Design.	Grade II listed building (no 1361972)
Sources	LHER
Description	This seventeenth-century farmhouse has been modified to form two cottages. It has a double-depth two-bay plan and the interior has been remodelled.
Assessment	The house lies beyond the proposed development area and will not be affected.

Site number	10
Site name	Weir
NGR	SD 79381 17998
Site type	Weir
Period	Industrial (1801-1832)
HER No	20284
Sources	LHER; Walkover survey
Description	The remnants of a collapsed hollow timber weir formerly crossed the River Irwell south of Stubbins Bridge. There are no current indications of the weir and a local resident said that it had been removed years ago.
Assessment	The site lies adjacent to the proposed development area but, as it has been removed, will not be affected.

Site number	11
Site name	Stubbins House
NGR	SD 79038 17826
Site type	House
Period	Industrial (pre-1849)
HER No	30705
Sources	LHER
Description	The house and adjoining buildings were shown on the first edition OS map of 1849, but it is no longer extant.
Assessment	The site lies beyond the proposed development area and will not be affected.

Site number	12
Site name	New Bridge Turnpike Toll House, Stubbins
NGR	SD 79328 18068
Site type	Toll House
Period	Industrial (pre-1849)
HER No	30706
Sources	LHER

Description	A toll house was shown on the first edition OS map of 1849.
Assessment	The site lies close to the proposed development area but will not be affected.
Site number	13
Site name	Stubbins Vale Mill
NGR	SD 78985 18241
Site type	Woollen Mill
Period	Industrial (1850)
HER No	30707
Sources	LHER; Simpson 2003
Description	J and J Porritt built, and became owners of, a new mill at Stubbins Vale Mill at the end of 1850. The original buildings had been replaced with a larger complex by the time of the OS mapping of 1894. Stubbins Vale Mill continued in use as a factory site during the twentieth century and, although the oldest parts of the mill were demolished in the 1970s, some of the mill buildings continued to be used as business premises
Assessment	The site lies beyond the proposed development area and will not be affected.
Site number	14
Site name	Rose Bank Bleaching Mill, Stubbins
NGR	SD 79391 18120
Site type	Bleachery
Period	Industrial (1801)
HER No	35002
Sources	LHER; Simpson 2003
Description	The bleachworks was built to the south-west of Rose Bank Printworks (Site 03) in 1801 and was initially known as New Bridge or Rose Bank Bleachworks. The bleachworks and printworks became directly associated in 1834, when they were both leased by Jackson, Watson and Grieg (<i>ibid</i>).
Assessment	The site lies beyond the proposed development area and will not be affected.
Site number	15
Site name	Union Works
NGR	SD 79296 17940
Site type	Cotton Mill
Period	Industrial (1868)
HER No	35057
Sources	LHER; Simpson 2003
Description	Union Mill was established as part of a co-operative mill by the Ramsbottom Spinning and Manufacturing Company, which was incorporated in 1861. The mill was built in 1868 and workers' houses were also constructed on Bolton Road North and on Dale Street. Union Mill went into liquidation in 1904 and the Union Works was divided into two distinct portions, with the weaving shed being let to the Star Manufacturing Company, and the spinning section being sold to a new company named Cuba Mill Ltd. Union Mill was demolished in 1939 and Cuba Mill was largely destroyed by fire in 1974 and the site was redeveloped as an industrial estate.
Assessment	The site lies beyond the proposed development area and will not be affected.
Site number	16
Site name	Chatterton Mill Tail Race Aqueduct
NGR	SD 79317 18128
Site type	Aqueduct
Period	Industrial (c1818)
HER No	-
Sources	OS 1849; Simpson 2003; BMAS ZAL/1339

Description	The tail race from Chatterton Mill (Site 02) crossed the River Irwell to the north of Stubbins Bridge by a timber aqueduct. This aqueduct does not appear to have been in place when the mill was first established in 1787-90, as it was not shown on a plan of 1797, and may have been built as part of the reorganisation of the water management systems in 1818. The timber aqueduct was not depicted on the OS mapping of 1849, suggesting that it was no longer in use by this date. The tail race appeared to flow directly into the River Irwell by this date.
Assessment	The aqueduct lay close to the proposed development area and sub-surface remains could be affected by the works.

Site number	17
Site name	Chatterton Mill Culvert
NGR	SD 79334 18097
Site type	Culvert
Period	Industrial (c 1818)
HER No	-
Sources	Simpson 2003
Description	The tail race from Chatterton Mill (Site 02) led to a covered timber aqueduct (Site 16) and then passed through the culvert underneath the turnpike road (Bolton Road North; A676), before linking with the head race for Ramsbottom Mills (Site 18).
Assessment	The culvert lies close or within the proposed development area and may be affected by the works.

Site number	18
Site name	Ramsbottom Mills Head Race Goit
NGR	SD 79299 17898
Site type	Head Race
Period	Industrial (c 1818)
HER No	-
Sources	Hume Elliot 1893; LCRO DRM 1/97; Simpson 2003
Description	James and John Ashton built Ramsbottom Mills, possibly as early as 1802, which operated as a spinning and weaving manufactory. The precise chronological development of the mill is not clear, but a long goit formed a head race that supplied the mill with water power and had been established by the time of the production of the Tottington Higher End tithe map of 1838. The goit ran from a part of the River Irwell lying immediately to the south of Stubbins Bridge (Site 20). It is likely that this goit had been established by at least as early as 1818, as Simpson (2003, 60) describes the tail race from Chatterton Mill linking to the head race as part of a water management system that is likely to have been established at this date.
Assessment	The tail race lies within the proposed development area and may be affected by the works.

Site number	19
Site name	Workers' Cottages south of Bolton Road North
NGR	SD 79346 18049
Site type	Terraced Houses
Period	Industrial (1868-1893)
HER No	-
Sources	OS 1893; Simpson 2003
Description	Union mill (Site 15) was built in 1868 and associated workers' houses were also constructed on Bolton Road North and on Dale Street. All of the terraced houses to the southern side of Bolton Road North had been built by 1893.
Assessment	The houses lie close to the proposed development area although there will not be any direct impacts and any visual affect on the setting will be negligible.

Site number	20
Site name	Stubbins Bridge
NGR	SD 79357 18104
Site type	Bridge
Period	Industrial (?nineteenth century)
HER No	-
Sources	BMAS ZAL/1339; OS 1849; OS 1910; LCRO DRM 1/97; Yates 1785
Description	This bridge was referred to on historic mapping variously as 'Stubbins Bridge', 'New Bridge' (OS 1849), New Hundred Bridge (BMAS ZAL/1339), and 'New-In-Tottington Bridge' (OS 1910). Records relating to the repair of 'New Bridge' in Tottington date to at least as early as 1663 (LCRO QSP/240/3), and the repair of the New Bridge in stone was recorded in 1701-2 (LCRO QSP/873/3). It is not clear, however, if these documents definitely relate to the same bridge. The current bridge appears to be of nineteenth-century date, although detailed inspection would be necessary in order to identify any evidence for structural phases. Yates's map of 1785 showed a road following the approximate current route of Bolton Road North through the study area and crossing the River Irwell at the same point as the current Stubbins Bridge (Site 20).
Assessment	The bridge lies adjacent to the proposed development but will not be affected.
Site number	21
Site name	Flood Embankment
NGR	SD 79180 18141
Site type	Embankment
Period	Industrial (pre-1838)
HER No	-
Sources	LCRO DRM/97; OS 1849; OS 1893; OS1810
Description	This embankment was first depicted on the Tottington Higher End tithe map of 1838 and was shown on the OS maps of 1849 and 1893. Only the western end of the embankment was depicted on the OS map of 1910 and this had by then been incorporated into a footpath.
Assessment	The western part of the embankment lies within the proposed development area and will be affected.
Site number	22
Site name	Gas Works
NGR	SD 79213 17792
Site type	Gas Works
Period	Industrial
HER No	-
Sources	OS 1849; OS 1893
Description	A gasworks (Site 22) was established within the southern portion of the study area during the second half of the nineteenth century. The gasworks was not shown on the OS mapping of 1849, but was depicted on the mapping of 1893.
Assessment	The southern end of the gas works lies within the development area and may be affected by the works.
Site number	23
Site name	Stonework associated with a Sluice
NGR	SD 79367 18007
Site type	Block of masonry
Period	Industrial
HER No	-
Sources	OS 1893
Description	According to a local resident, the weir (Site 10) was dismantled some years ago. A linear section of large-block masonry (Site 23) is visible within a garden adjacent to the river and this appears to correspond with the position of a sluice shown as

Assessment	early as 1893. The masonry lies close to the proposed development and may be affected.
Site number	24
Site name	Block of Three Buildings
NGR	SD 79321 17890
Site type	Buildings
Period	Industrial (1893-1910)
HER No	-
Sources	OS 1893; OS 1910; OS 1929
Description	A block of three small buildings with associated exterior plots was built between 1893 and 1910 (OS 1893; OS 1910) and was also shown on the OS mapping of 1912. The function of these buildings is unclear, although it was presumably associated with either the gasworks (Site 22) or the Union Works (Site 15). These buildings were no longer depicted on the mapping of 1929.
Assessment	The buildings lie beyond the proposed development area and will not be affected.
Site number	25
Site name	River Irwell Retaining Structure
NGR	SD 79309 18123
Site type	Retaining structure
Period	?Industrial
HER No	-
Sources	Walkover survey
Description	The low water levels of the River Irwell exposed a series of stakes along the western bank of the river that had been used to attempt to retain the river bank, and which had been augmented with deposits of stone and rubble.
Assessment	The stakes and bank reinforcing lie outside of the proposed development area and will not be affected.
Site number	26
Site name	Chatterton/Strongsty Conservation Area
NGR	-
Site type	Conservation Area
Period	-
HER No	-
Sources	Rossendale Borough Council 2011
Description	The conservation area was designated on 7 th March 1975 and is largely defined by the historic characters of the hamlet of Chatterton and of Strongsty, both of which developed as a result of industrial activity during the eighteenth and nineteenth centuries.
Assessment	The northern end of the proposed development area lies adjacent to the conservation area and partially enters the area at the north-west end. The north-western end of the proposed development will affect the adjacent part of the conservation area.

6. ASSESSMENT OF THE SIGNIFICANCE OF THE REMAINS

6.1 INTRODUCTION

6.1.1 Twenty-five sites, or heritage assets, have been identified within the study area. Sites **01-15** were identified from the LHER, Sites **16, 23**, and **25** were identified during the walkover survey and Sites **17-22** and **24** were identified through map regression and documentary research. Nine of the heritage assets are located in the near vicinity of the proposed flood wall and, therefore, might be affected by the development (Sites **16-23** and **26**). Only these sites, which have the potential to be impacted upon by the proposed development will be considered in the following assessment. There are no listed buildings or scheduled monuments within the study area that might be affected in terms of visual impacts upon their settings, although two of the sites (Stubbins Bridge, Site **20**; Terraced houses, Site **19**) are historic buildings, without statutory designations, that might be affected in terms of visual impact. All of the sites that might be affected by the proposed development date to the industrial period. The northern east/west stretch of the proposed flood wall lies immediately adjacent to, and partially within, the Chatterton/Strongsty Conservation Area (Site **26**).

Period	No of Sites	Site
Neolithic/ Bronze Age	0	-
Iron Age	0	-
Romano-British	0	-
Early Medieval	0	-
Late Medieval	0	-
Post-medieval	0	-
Industrial	8	Aqueduct (Site 16), culvert (Site 17), Ramsbottom Mills goit (Site 18), workers' housing (Site 19), Stubbins Bridge (Site 20), flood embankment (Site 21), gas works (Site 22), sluice stonework (Site 23), Chatterton/Strongsty Conservation Area (Site 26)
Modern	0	-

Table 2: Number of sites that may be impacted by period

6.1.2 In National Planning Policy Framework (NPPF), the Department of Communities and Local Government (DCLG) states that for proposed developments meriting assessment the '*significance of any heritage assets affected, including any contribution made by their setting*' should be understood in order to assess the potential impact (Section 12.128, NPPF, DCLG 2012). Therefore, the following section will determine the nature and level of the significance of this archaeological resource, as detailed in *Sections 3 to 5*. This is an iterative process, beginning with the guideline criteria outlined in Table 2, below. In general terms, the recording of a heritage asset, *eg* SMR, SM or listed building, and any subsequent grading thereafter, by its nature, determines its importance. However, this is further quantified by factors such as

the existence of surviving remains or otherwise, its rarity, or whether it forms part of a group. There are a number of different methodologies used to assess the archaeological significance of heritage assets, but that employed here (*Section 6.2*) is the ‘Secretary of State’s criteria for scheduling ancient monuments’ (Annex 1; DCMS 2010).

Importance	Examples of Heritage Asset
National	Scheduled Monuments (SMs), Grade I, II* and II Listed Buildings
Regional/County	Conservation Areas, Registered Parks and Gardens (Designated Heritage Assets) Sites and Monuments Record/Historic Environment Record
Local/Borough	Assets with a local or borough value or interest for cultural appreciation Assets that are so badly damaged that too little remains to justify inclusion into a higher grade
Low Local	Assets with a low local value or interest for cultural appreciation Assets that are so badly damaged that too little remains to justify inclusion into a higher grade
Negligible	Assets or features with no significant value or interest
Uncertain	As-yet-undetected sub-surface remains of prehistoric or Romano-British date

Table 3: Guideline criteria used to determine Importance of Heritage Assets

6.2 QUANTIFICATION OF IMPORTANCE

6.2.1 The gazetteer sites previously listed (*Section 5*, above) were each considered using the criteria for scheduling ancient monuments: period, rarity, documentation, group value, survival/condition, fragility/vulnerability, diversity, and potential. This information will contribute to the overall assessment of the importance of each heritage asset.

6.3 STATEMENT OF IMPORTANCE

6.3.1 Using the guideline criteria outlined in Table 3, together with further quantification (*Section 6.2*), and informed professional judgement, each of the sites listed in the gazetteer has been assessed for importance as a heritage asset of archaeological interest (Table 4).

Site No	Site name	Importance
16	Aqueduct	Local/borough
17	Culvert	Local/borough
18	Ramsbottom Mills goit	Regional/County
19	Workers' housing	Local/borough
20	Stubbins Bridge	Local/borough
21	Flood embankment	Negligible
22	Gas works	Local/borough
23	Sluice stonework	Local/borough
26	Chatterton/Strongsty Conservation Area	Regional/County

Table 4: Importance of each gazetteer site

7. IMPACT ASSESSMENT

7.1 IMPACT

7.1.1 Heritage assets are an '*irreplaceable resource*' (DCLG 2012). Therefore, it has been the intention of this study to identify the archaeological significance and potential of the study area, and assess the impact of proposed development, allowing the policy stated in NPPF (DCLG 2012) to be enacted upon. Assessment of impact has been achieved by the following method:

- assessing any potential impact and the significance of the effects arising from the proposals;
- reviewing the evidence for past impacts that may have affected the archaeological sites;
- outlining suitable mitigation measures, where possible at this stage, to avoid, reduce or remedy adverse archaeological impacts, or suggestions for further investigation where necessary.

7.1.2 The impact is assessed in terms of the importance, or sensitivity, of the site to the magnitude of change or potential scale of impact during the proposed scheme. The magnitude, or scale, of an impact is often difficult to define, but will be termed substantial, moderate, slight, or negligible, as shown in Table 5, below.

Scale of Impact	Description
Substantial	Significant change in environmental factors; Complete destruction of the site or feature; Change to the heritage asset resulting in a fundamental change in ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Moderate	Significant change in environmental factors; Change to the heritage asset resulting in an appreciable change in ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Slight	Change to the heritage asset resulting in a small change in our ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Negligible	Negligible change or no material changes to the heritage asset. No real change in our ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.

Table 5: Criteria used to determine Scale of Impact

7.1.3 The scale of impact, when weighted against the importance of the heritage asset, produces the impact significance. This may be calculated by using the matrix shown in Table 6, below.

Resource Value (Importance)	Scale of Impact Upon Heritage Asset			
	Substantial	Moderate	Slight	Negligible
National	Major	Major	Intermediate/ Minor	Neutral
Regional/County	Major	Major/ Intermediate	Minor	Neutral
Local/Borough	Intermediate	Intermediate	Minor	Neutral
Local (low)	Intermediate / Minor	Minor	Minor/ Neutral	Neutral
Negligible	Neutral	Neutral	Neutral	Neutral
Uncertain	Unknown	Unknown	Unknown	Unknown

Table 6: Impact Significance Matrix

7.1.4 **Previous disturbance:** the extent of any previous disturbance to buried archaeological horizons is an important factor in assessing the potential impact of the development scheme. Much of the flood embankment (Site 21) has been damaged or destroyed as a result of housing development and landscaping, although portions of the western end of the bank may survive in a reduced form. The former site of a timber aqueduct (Site 16) over the River Irwell is represented by timber uprights within the river but associated remains on the western bank of the river are likely to have been disturbed by works associated with the construction of houses and gardens. It is possible that slight foundation-level remains, such as postholes, might survive in this area. The precise course of the aqueduct and associated culvert from the western bank of the river is unclear, although it ran under Bolton Road North and joined with the Ramsbottom Mills goit (Site 18). Although the construction of houses to each side of the road is likely to have damaged this feature, portions may survive where such construction has not occurred.

7.1.5 The area associated with the sluice (Site 23) appears to have been infilled towards the river side, in order to extend usable land in this area and the former retaining wall of the river and associated structures associated with the sluice may remain *in situ*. Although there is no current indication of the Ramsbottom Mills goit (Site 18), this feature appears to have been infilled in order to provide developable space for the industrial estate and is likely to have been largely preserved *in situ* as few areas along the line of the goit appear to have been subject to the subsequent construction of deep foundations. Although the gas works (Site 22) has been demolished, the portion within the proposed development area has not been redeveloped and the potential exists for sub-surface remains associated with a square building and a gasometer.

7.2 SIGNIFICANCE OF IMPACT

7.2.1 Following on from the above considerations, the significance of effects has been determined based on the necessity for ground works associated with the excavation of foundations for the flood management wall.

Site No.	Site name	Nature of Impact	Scale of Impact	Impact Significance
16	Aqueduct	Possible disturbance of slight sub-surface remains	Slight	Minor
17	Culvert	Possible disturbance of sub-surface remains	Moderate	Intermediate
18	Ramsbottom Mills goit	Possible disturbance of sub-surface remains	Slight	Minor
19	Workers' housing	Negligible	Neutral	Neutral
20	Stubbins Bridge	None	Neutral	Neutral
21	Flood embankment	Possible disturbance of above and below ground remains	Slight	Neutral
22	Gas works	Possible disturbance of sub-surface remains	Slight	Minor
23	Sluice stonework	Possible disturbance of above and below ground remains	Substantial	Intermediate
26	Chatterton/Strongsty Conservation Area	Visual impact upon setting	Slight	Minor

Table 7: Assessment of the impact significance on each site during development

7.2.2 The impacts upon Sites **16**, **17**, **18**, **21**, **22**, and **23** will all comprise direct physical impacts upon above ground and sub-surface remains of archaeological interest as a result of the excavation of foundations for the proposed flood management walls. Although Stubbins Bridge lies close to the line of the proposed works, the northern side of the bridge is obscured by a modern footbridge (Plate 7) and, therefore, any visual impact upon the setting of the bridge is vastly diminished. The presence of trees and vegetation along the river bank (Plate 19) will also shield views of the proposed wall and, therefore, there will not be an impact upon the setting of the bridge from the northern side. The southern side of the bridge is not currently obscured and works in this area will be restricted to the re-pointing of the current boundary wall and will not cause a change to the setting of the bridge.

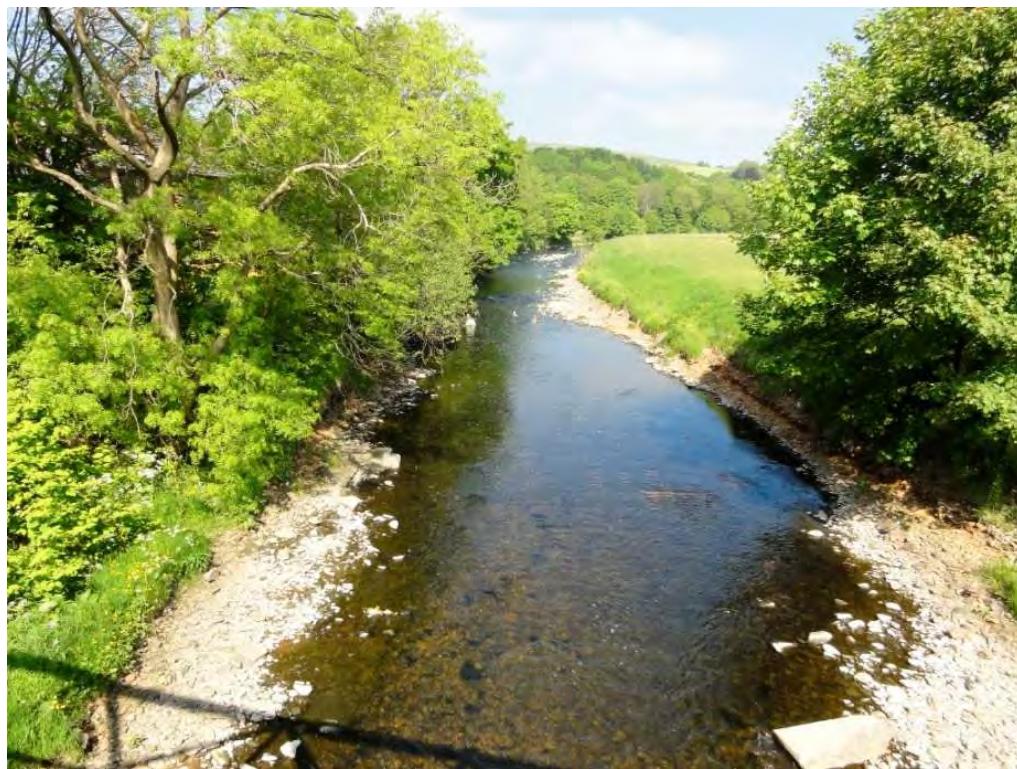


Plate 19: A view looking north-west along the River Irwell from the footbridge adjacent to Stubbins Bridge (Site 20) showing tree cover along the western bank

7.2.3 The stretch of proposed new walling to the east of the southern end of Industrial Street will follow the line of the existing fence to the west of the river bank and will comprise a concrete wall approximately 0.77m high along which the fence will be replaced. This will only be visible to the rear of the four properties at the eastern end of Dale Street and will not constitute a significant change to the historic setting to the houses.

7.2.4 The Chatterton/Strongsty Conservation Area (Site 26) lies along the north-eastern and northern extents of the proposed development area. The townscape appraisal map for the conservation area (Rossendale Borough Council 2011) shows a series of viewpoints that are described as important views. Three of these views are relevant to the current scheme. One of these looks northwards along the River Irwell from Stubbins Bridge (Plate 19), a second looks northwards from the eastern side of the bridge (Plate 20), and a third looks westwards from Chatterton Road (Plate 21). The views northwards from Stubbins Bridge include oblique views of the western river bank (Plates 19 and 20). As this bank is occupied by vegetation and mature trees, the oblique aspect serves to create an impression of even greater density of vegetation, as the perspective draws the foliage together into a seemingly unbroken, and visually impenetrable, swathe. Therefore, the proposed wall would certainly not be visible from these viewpoints whilst the trees are in leaf. As the projected height of the new walling would be between 0.34m and 0.68m above ground level, this is unlikely to be conspicuous even at times when the tree cover is seasonally diminished. Almost the whole of this walling line will be situated to the west of the allotment and garden spaces that line the river bank, most of which are defined by fences, so the walling is unlikely to be visible from these viewpoints.



Plate 20: A view of the southern end of the Chatterton/Strongsty Conservation Area looking north

7.2.5 The westward viewpoint from Chatterton Road (Plate 21) looks over an area where the proposed walling will constitute a low base approximately 0.34m high. This will be established along an existing fence line, which lies to the west of a series of allotments and gardens. Once more, the tree cover and presence of the allotments or gardens, and associated current fencing means that the proposed walling will not be visible from this viewpoint.



Plate 21: A view from the southern end of the Chatterton/Strongsty Conservation Area looking west

7.2.6 The north-western end of the proposed flood management scheme will cross into the south-western portion of the conservation area (Plate 22). This will comprise a wall and fence that is 1.58m high, viewed from the south, and 2.89m high, viewed from the north. This will result in a visual impact upon this portion of the conservation area, although this will not intrude on any of the previously defined 'important views' (Rossendale Borough Council 2011). As seen on Plate 22, the backdrop for the view towards this area is dominated by the houses lining Alderway and, therefore, the wall would not be incongruous to the historic character of this setting. However, a stretch of the wall will run in front of the current hedge and tree line and will, therefore, be more conspicuous as a disruption to the current boundary of Pin Meadow. There will, therefore, be a conspicuous introduction of materials and a structure type of twenty-first century origin into a conservation area that is defined by the character of the eighteenth and nineteenth century industrial heritage. Although this will be conspicuous as a new structure, the presence of a historic flood embankment within this general area means that it is not entirely inconsistent with the local historic character.



Plate 22: A view of the south-western end of the Chatterton/Strongsty Conservation Area, looking south

8. RECOMMENDATIONS

8.1 INTRODUCTION

- 8.1.1 A desk-based assessment is usually the first stage of an iterative process of investigating the archaeological resource within a proposed development area. Having identified the potential for archaeological remains, the importance of these remains, and the significance of the impact by the development, further investigation is often required to determine the exact nature, survival, extent, and date of the remains so that effective mitigation strategies can be proposed.
- 8.1.2 In determining proposals for mitigation, it is necessary to consider only those heritage assets identified in the desk-based assessment that are likely to be affected by the proposed development. Current planning policy draws a distinction between designated heritage assets and other remains considered to be of lesser significance; '*great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be...substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, including scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings and grade I and II* registered parks and gardens and World Heritage Sites, should be wholly exceptional*' (Section 12.132, NPPF, DCLG 2012). Therefore preservation *in situ* is the preferred course in relation to such sites unless exception circumstances exist.
- 8.1.3 It is normally accepted that non-designated sites will be preserved by record, in accordance with their significance and the magnitude of the harm to or loss of the site as a result of the proposals, to '*avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposals*' (Section 12.129, NPPF, DCLG 2012). Non-designated heritage assets of archaeological interest will also be subject to the policies reserved for designated heritage assets if they are of equivalent significance to scheduled monuments (Section 12.132, NPPF, DCLG 2012).

8.2 PROPOSED MITIGATION

- 8.2.1 **Introduction:** the mitigation is based upon the specific character of each heritage asset assessed and the type and scale of predicted impact upon each heritage asset. Mitigation has only been proposed in relation to impacts of minor significance or greater.
- 8.2.2 **Mitigation:** the former aqueduct (Site 16) and culvert (Site 17) extended across the river and would have been at a substantial level above the base of the river. Although the proposed footpath raising work in this area would be undertaken up to 3m above the river, there is a slight possibility that the ground works would impact upon sub-surface remains of the culvert (Site 17) (and perhaps also the aqueduct (Site 16). It is considered, therefore, that a localised watching brief would be an appropriate approach to ensuring that any such remains are preserved by record. Portions of the Ramsbottom Mills goit (Site 18) and the gas works (Site 22) may also be subject to disturbance during ground works;

however, the walling in these areas is likely to comprise sheet piling, which may not require preparatory foundation excavation. If any such preparatory excavations were to be undertaken then these should be subject to archaeological watching brief to ensure that any exposed fabric of the goit is preserved by record. If the piling is undertaken in the absence of such works then this impact will not be able to be mitigated.

8.2.3 The stonework associated with the sluice between the weir (Site **10**) and the Ramsbottom Mills goit (Site **18**) may be disturbed as a result of ground works associated with the introduction of sheet piling into this area. The stonework should be subject to topographic and photographic survey in advance of any ground works and, if the removal of the stonework is necessary to facilitate the piling, the structure should be exposed and subject to full building recording in advance of disturbance.

8.2.4 Present proposals for the flood defences in the area of Site **23**, would entail constructing a localised wall through the garden, and could potentially extend along the line of the existing masonry (Site **23**). Given the potential to impact upon the extant structure, it would need to be recorded in advance and subject to a watching brief during the ground works.

8.2.5 The flood management walling in Pin Meadow has been changed from a porcupine structure to a traditional stone retaining wall (S Fox *pers comm*) and would therefore not significantly detract from the historic character of the area; as such the walling should not require any screening.

Site no	Description	Importance	Impact Significance	Mitigation
16	Aqueduct	Local/borough	Minor	Watching brief
17	Culvert	Local/borough	Intermediate	Watching brief
18	Ramsbottom Mills goit	Regional/County	Minor	Watching brief if preparatory ground works are undertaken
19	Workers' housing	Local/borough	Neutral	None
20	Stubbins Bridge	Local/borough	Neutral	None
21	Flood embankment	Negligible	Neutral	None
22	Gas works	Local/borough	Minor	Watching brief if preparatory ground works are undertaken
23	Sluice stonework	Local/borough	Intermediate	Topographic and photographic survey. Building recording if the stonework is to be removed
26	Chatterton/Strongsty Conservation Area	Regional/County	Minor	Planted screening along the northern edge of the walling

Table 8: Summary of site-specific proposals for archaeological mitigation

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ILLUSTRATIONS

FIGURES

- Figure 1: Site Location
- Figure 2: Plan showing the locations of the gazetteer sites
- Figure 3: Extract from Yates' Map of Lancashire, 1786
- Figure 4: Extracts from the Tottington Higher End tithe map of 1838 and the Tottington Lower End tithe map of 1842
- Figure 5: Proposed Scheme superimposed on the Ordnance Survey first edition 6": 1 mile map of 1849
- Figure 6: Proposed Scheme superimposed on the Ordnance Survey first edition 25": 1 mile map of 1893
- Figure 7: Proposed Scheme superimposed on the Ordnance Survey first edition 25": 1 mile map of 1910
- Figure 8: Proposed Scheme superimposed on the Ordnance Survey first edition 25": 1 mile map of 1929

PLATES

- Plate 1: Extract from the plan of the proposed turnpike road from Bolton to Edenfield of 1797 (BMAS ZAL/1339)
- Plate 2: Pin Meadow viewed from the south-west with the tree marking the approximate position of the flood management wall
- Plate 3: The boundary between Pin Meadow and the residential area, marking the approximate route of the proposed flood management wall, looking west
- Plate 4: The passage between back gardens and allotment/garden areas to the west of the River Irwell at the northern end of the proposed scheme, looking south-west
- Plate 5: The path between back gardens and allotment/garden areas to the west of the River Irwell and just north of Stubbins Bridge, looking south-west
- Plate 6: The narrow space between the rear boundaries of the allotment areas and the river at the northern end of the proposed scheme
- Plate 7: An oblique view of the northern elevation of Stubbins Bridge (Site 20) with the modern footbridge adjacent
- Plate 8: A series of upright timber posts (Site 17) to the north of Stubbins Bridge representing the supports for a timber aqueduct that formed part of the Chatterton Mill tail race (Site 02)
- Plate 9: The meadow to the east of the River Irwell through which the Chatterton Mill tail race (Site 02) formerly ran
- Plate 10: A view of the southern elevation of Stubbins Bridge

- Plate 11: Looking southwards towards the proposed route of the flood wall from Stubbins Bridge
- Plate 12: The front of the workers' cottages (Site **19**) at the eastern end of Dale Street, looking east
- Plate 13: The rear of the workers' cottages (Site **19**) at Bolton Road North and Dale Street, looking east
- Plate 14: The location of the former weir (Site **10**), looking north-west
- Plate 15: The site of the former weir (Site **10**), looking south-east
- Plate 16: Large block masonry (Site **23**) running to the west of the former weir (Site **10**) and possibly associated with the sluice
- Plate 17: The southern end of the route of the proposed flood wall at the rear of the TNT depot
- Plate 18: The wide avenue within the industrial estate that lies on the line of the former Ramsbottom Mills head race goit (Site **18**)
- Plate 19: A view looking north-west along the River Irwell from the footbridge adjacent to Stubbins Bridge (Site **20**) showing tree cover along the western bank
- Plate 20: A view of the southern end of the Chatterton/Strongsty Conservation Area looking north
- Plate 21: A view from the southern end of the Chatterton/Strongsty Conservation Area looking west
- Plate 22: A view of the south-western end of the Chatterton/Strongsty Conservation Area, looking south